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			Filing Date	May 24, 2001	
			First Named Inventor	Jacques MARCHAND	
			Art Unit	2862	
			Examiner Name		
Sheet	2	of	5	Attorney Docket Number	15200-1US JA/IC/lr

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MB		STUDIES ON THE STABILITY OF CALCIUM CHLORALUMINATE, M. Ben-Yair, Israel Journal of Chemistry, Vol. 9, 1971 pp. 529-536	
		PREDICTION AND FIELD VERIFICATION OF SUBSURFACE-WATER QUALITY CHANGES DURING ARTIFICIAL RECHARGE, D.B. Grove, W.W. Wood, Ground Water, Vol. 17, No. 3, 1979 pp. 250-257	
		ÉTUDE FONDAMENTALE DES TRANSFERTS COUPLES CHALEUR-MASSE EN MILIEU POREUX, P.Crausse, G. Bacon, S. Bories, Int. J. Heat Mass Transfer, Vol. 24, No. 6, pp.991-1004 1981	
		TRANSPORT OF REACTING SOLUTES IN POROUS MEDIA: RELATION BETWEEN MATHEMATICAL NATURE OF PROBLEM FORMULATION AND CHEMICAL NATURE OF REACTIONS, J. Rubin, Water Resources Research, Vol. 19, No. 5, pp 1231-1252, 1983	
		CONDENSATION AND ISOTHERMAL WATER TRANSFER IN CEMENT MORTAR Part I – PORE SIZE DISTRIBUTION, EQUILIBRIUM WATER CONDENSATION AND IMBIBITION, J.-F. Daian, Transport in Porous Media 3, pp. 563-589, 1988	
		AN ION INTERACTION MODEL FOR THE DETERMINATION OF CHEMICAL EQUILIBRIA IN CEMENT/WATER SYSTEMS, E.J. Reardon, Research, Vol. 20, pp. 175-192, 1990	
		COMPUTER SIMULATION OF THE DIFFUSIVITY OF CEMENT-BASED MATERIALS, E.J. Garbocz, D.P. Bentz, Journal of Materials Science, Vol. 27, pp. 2083-2092, 1992	
		CHLORIDE BINDING CAPACITY AND BINDING ISOTHERMS OF OPC PASTES AND MORTARS, L. Tang, L-O Nilsson, Cement and Concrete Research, Vol. 23, pp. 247-253, 1993	
		THERMODYNAMIC INVESTIGATION OF THE CaO-Al <sub>2</sub> O <sub>3</sub> -CaSO <sub>4</sub> -H <sub>2</sub> O SYSTEM AT 25°C AND THE INFLUENCE OF Na <sub>2</sub> O, D. Damidot, F.P. Glasser, Cement and Concrete Research, Vol. 23, No.1, pp. 221-238, 1993	
		AQUEOUS PHASE EQUILIBRIA IN THE SYSTEM CaO-Al <sub>2</sub> O <sub>3</sub> -CaCl <sub>2</sub> -H <sub>2</sub> O: THE SIGNIFICANCE AND STABILITY OF FRIEDEL'S SALT, C. Abate, B.E. Scheetz, Journal of the American Ceramic Society, Vol. 78, No. 4, pp. 939-944, 1995	
✓		THERMODYNAMIC INVESTIGATION OF THE CaO-Al <sub>2</sub> O <sub>3</sub> -CaSO <sub>4</sub> -K <sub>2</sub> O-H <sub>2</sub> O SYSTEM AT 25°C, D. Damidot, F.P. Glasser, Cement and Concrete Research, Vol. 23, No. 5, pp. 1195-1204, 1993	

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MB		ANALYSIS OF CHLORIDE DIFFUSION INTO PARTIALLY SATURATED CONCRETE, A.V. Saetta, R.V. Scotta, R.V. Vitaliani, ACI Materials Journal, Vol. 90, No. 5, pp. 441-451, 1993
		CALCULATION OF CHLORIDE DIFFUSION COEFFICIENTS IN CONCRETE FROM IONIC MIGRATION MEASUREMENTS, C. Andrade, Cement and Concrete Research, Vol. 23, pp. 724-742, 1993
		MOISTURE DIFFUSION IN CEMENTITIOUS MATERIALS, ADSORPTION ISOTHERMS, Y. Xi, Z. Bazant, H.M. Jennings, Advance Cement Based Materials, Vol. 1, pp. 248-257, 1994
		MOISTURE TRANSPORT IN POROUS BUILDING MATERIALS, L. Pel, Eindhoven University of Technology, Netherlands, Ph.D. Thesis, pp. 1-127, 1994
		BARRIER PERFORMANCE OF CONCRETE: A REVIEW OF FLUID TRANSPORT THEORY, C. Hall, Materials and Structures, Vol. 27, pp. 291-306, 1994
		DIFFUSION BEHAVIOR OF CHLORIDE IONS IN CONCRETE, T. Zhang, O.E. Gjorv, Cement and Concrete Research, Vol. 26, No. 6, pp. 907-917, 1996
		NUMERICAL SIMULATION OF REINFORCED CONCRETE DETERIORATION-PART I: CHLORIDE DIFFUSION, E.J. Hansen, V.E. Saouma, ACI Material Journal, Vol. 96, No. 2, pp 173-180, 1999
		DIFFUSION OF SULFATE IONS INTO CEMENT STONE REGARDING SIMULTANEOUS CHEMICAL REACTIONS AND RESULTING EFFECTS, P.N. Gospodinov, R.F. Kazandjev, T.A. Partalin, M.K. Mironova, Cement and Concrete Research, Vol. 29, pp. 1591-1596, 1999
		INFLUENCE OF VOLTAGE ON CHLORIDE DIFFUSION COEFFICIENTS FROM CHLORIDE MIGRATION TESTS, P.F. McGrath, R.D. Hooton, Cement and Concrete Research, Vol. 26, No. 8, pp. 1239-1244, 1996
		SIMULATION OF CHLORIDE PENETRATION IN CEMENT-BASED MATERIALS, M. Masi, D. Colella, G. Radaelli, L. Bertolini, Cement and Concrete Research, Vol. 27, No. 10, pp. 1591-1601, 1997
✓		MODELLING OF ELECTROCHEMICAL CHLORIDE EXTRACTION FROM CONCRETE: INFLUENCE OF IONIC ACTIVITY COEFFICIENTS, L.Y. Li, C.L. Page, Computational Materials Science, Vol. 9, pp. 303-308, 1998

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AB		MODELING OF CHLORIDE DIFFUSION IN CONCRETE AND DETERMINATION OF DIFFUSION COEFFICIENTS, M. Nagesh, B. Bhattacharjee, ACI Materials Journal, Vol. 95, No. 2, pp 113-120, 1998
		ÉTUDE DES MÉCANIQUES DE TRANSPORT DE L'EAU PAR ABSORPTION CAPILLAIRE DANS DES MATÉRIAUX CIMENTAIRES USUELS ET DE HAUTE PERFORMANCE, K. Hazrati, Ph.D. Thesis, Laval University, Canada, 1998
		SERVICE LIFE MODELLING OF R.C. HIGHWAY STRUCTURES EXPOSED TO CHLORIDES, B. Martin-Pérez, Ph.D. Thesis, Toronto University, Canada, 1998
		DESCRIBING ION DIFFUSION MECHANISMS IN CEMENT-BASED MATERIALS USING THE HOMOGENIZATION TECHNIQUE, E. Samson, J. Marchand, J.J. Beaudoin, Cement and Concrete Research, Vol. 29, No. 8, pp. 1341-1345, 1999
		MODELING CHEMICAL ACTIVITY EFFECTS IN STRONG IONIC SOLUTIONS, E. Samson, G. Lemaire, J. Marchand, J.J. Beaudoin, Computational Materials Science, Vol. 15, No. 3, pp. 285-294, 1999
		MODELLING ION DIFFUSION MECHANISMS IN POROUS MEDIA, E. Samson, J. Marchand, J.L. Robert, J.P. Bournazel, International Journal for Numerical Methods in Engineering, Vol. 46, pp. 2043-2060, 1999
		NUMERICAL SOLUTION OF THE EXTENDED NERNST-PLANCK MODEL, E. Samson, J. Marchand, Journal of Colloid and Interface Science, Vol. 215, pp. 1-8, 1999
		NEW ALGORITHMS FOR MODELING DISSOLUTION/PRECIPITATION REACTIONS IN CEMENT-BASED MATERIALS, E. Samson, J. Marchand, pp. 1-31, Submitted 2000
		A NEW WAY FOR DETERMINING THE CHLORIDE DIFFUSION COEFFICIENT IN CONCRETE FROM STEADY STATE MIGRATION TEST, O. Truc, J.P.125 Olivier, M. Carcassès, Cement and Concrete Research, Vol. 30, pp. 217-226, 2000
		CHLORIDE INGRESS IN PARTIALLY AND FULLY SATURATED CONCRETES, S. Swaddiwudhipong, S.F. Wong, T.H. Wee, S.L. Lee, Concrete Science and Engineering, Vol. 2, pp. 17-31, 2000
✓		NUMERICAL SIMULATION OF MULTI-SPECIES DIFFUSION, O. Truc, J.P. Olivier, L.O. Nilsson, Materials and Structures, Vol. 33, pp. 566-573, 2000

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AB		THE SOLUBILITY OF ETTRINGGITE AT 25°C, C.J. Warren, E.J. Reardon, Cement and Concrete Research, Vol. 24, No. 8, pp. 1515-1524, 1994
		RAPID DETERMINATION OF THE CHLORIDE DIFFUSIVITY IN CONCRETE BY APPLYING AN ELECTRICAL FIELD, T. Luping, L.O. Nilsson, ACI Materials Journal, Vol. 89, No. 1, pp. 49-53, 1992
		SIMULTANEOUS HEAT, MASS, AND MOMENTUM TRANSFER IN POROUS MEDIA: A THEORY OF DRYING, S. Whitaker, Advances in Heat Transfer, Vol. 13, pp. 119-203, 1977
		PHYSICAL STRUCTURE OF HARDENED CEMENT PASTE. A CLASSICAL APPROACH, Matériaux et Constructions, Vol. 19, No 114, pp. 423-436
Y		AN ELECTROCHEMICAL METHOD FOR ACCELERATED TESTING OF CHLORIDE DIFFUSIVITY IN CONCRETE, T. Zhang, O.D. Gjorv, Cement and Concrete Research, Vol. 24, No. 8, pp. 1534-1548, 1994

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